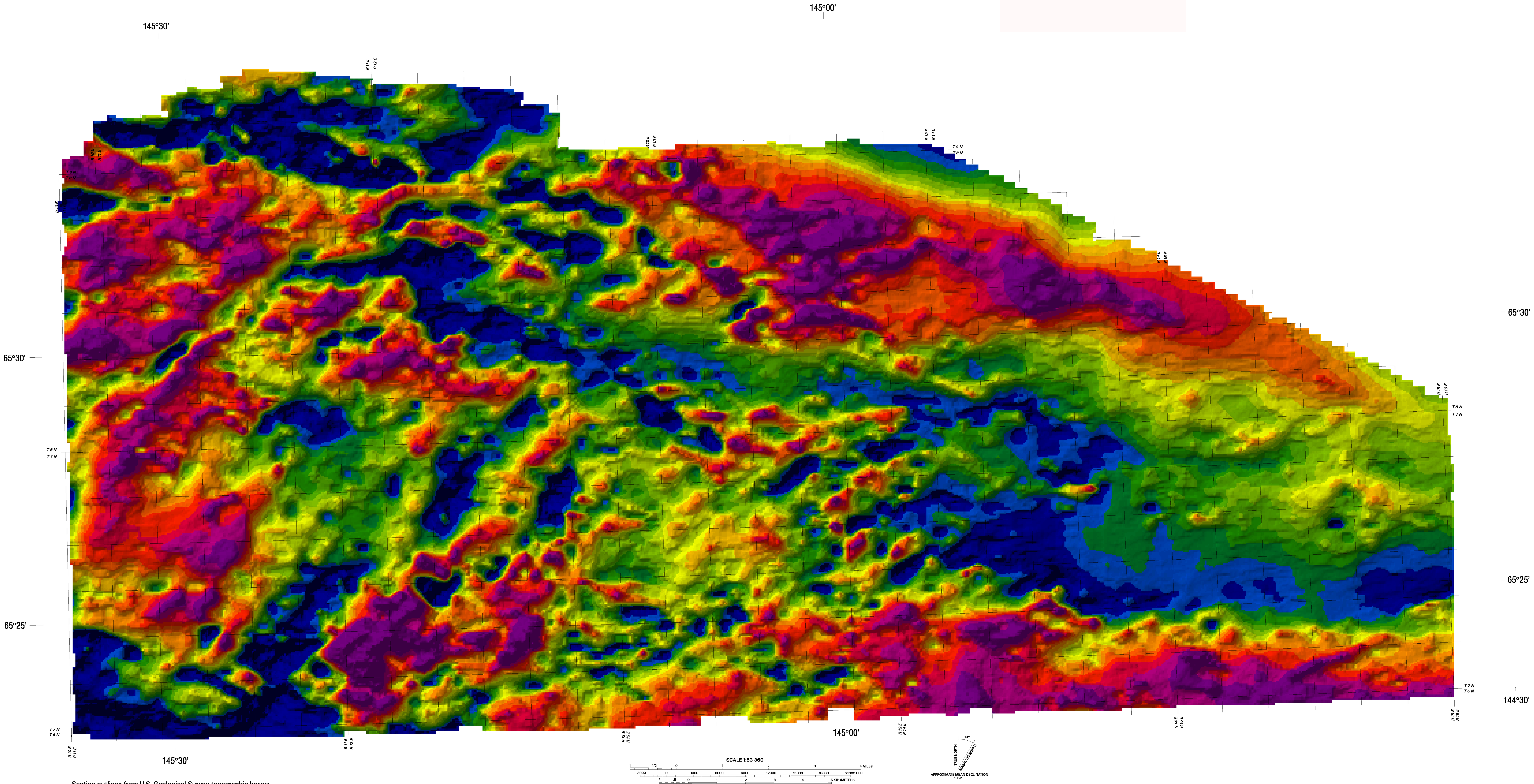
AI ASKA DIVISION OF GEOI OGICAI &
GEOPHYSICAI SURVEYS

REPORT OF INVESTIGATIONS 94-15



Section outlines from U.S. Geological Survey topographic bases:
Circle B-2,4; C-2,4; Quadrangles, Alaska, 1952

COIOR SHADOW TOTAI FIEI D MAGNETICS OF THE CIRCI E MINING DISTRICT

AZIMUTH 315°, INCLINATION 40°

1994

DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM Electromagnetic (EM) system, a Scintrex cesium CS2 magnetometer, and a Herz VLF system installed in an AS350B-1 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flights were performed at a mean terrain clearance of 200 feet along survey flight lines with a spacing of a quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately three miles.

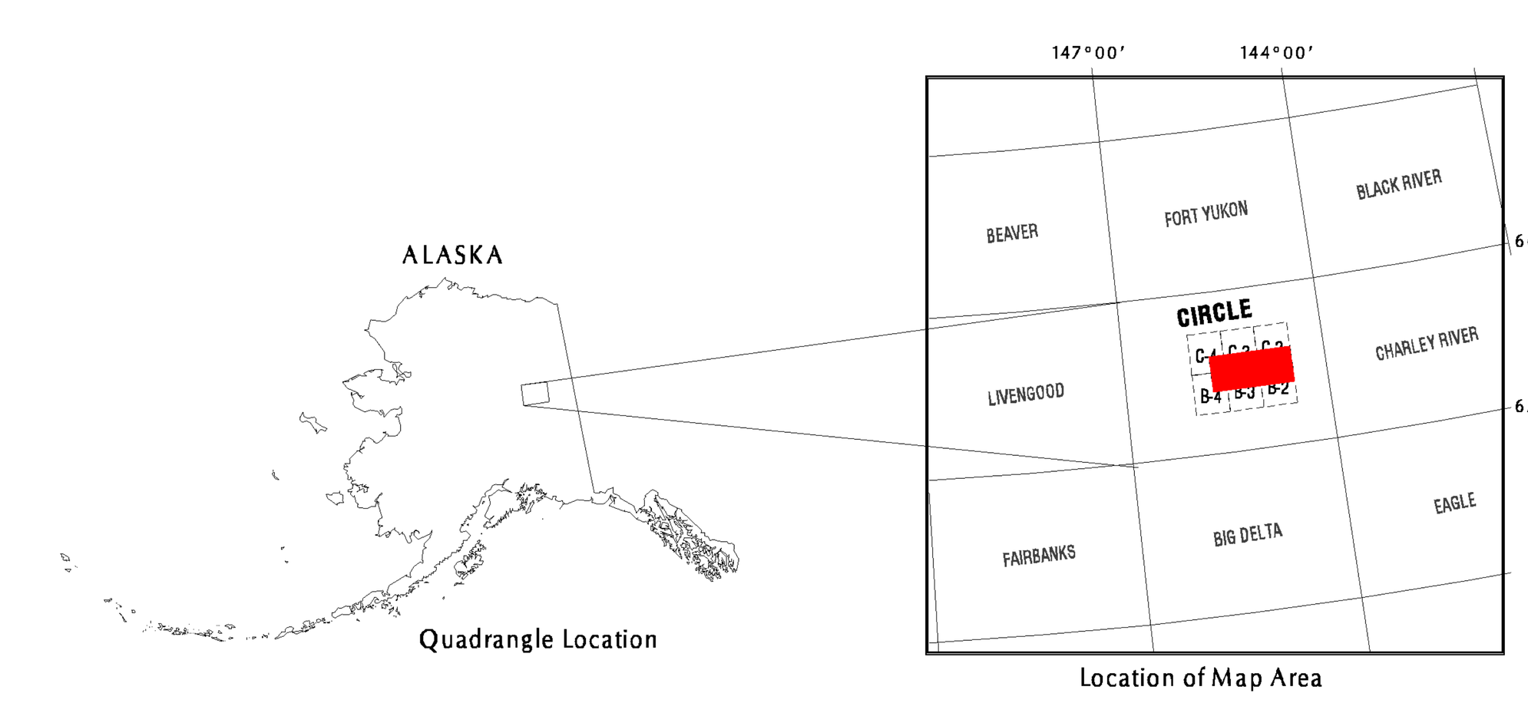
A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of less than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 147 degrees, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m with respect to the UTM grid.

TOTAL FIELD MAGNETICS

The magnetic total field contours were produced using digitally recorded data from a Scintrex cesium CS2 magnetometer, with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) levelled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. A third order polynomial surface was fitted to the data by least squares linear regression and removed to eliminate strong regional gradients.

Akima, H., 1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery, v. 17, no. 4, p. 589-602.

Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System



Quadrangle Location
Location of Map Area

SURVEY HISTORY

This map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys, and WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area was acquired by Dighem Surveys & Processing, Inc. in 1993. Other products from this survey are available from the Alaska Division of Geological & Geophysical Surveys, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709.

COLOR SHADOW MAP

The color shadow map is produced by combining the standard aeromagnetic color map with a shadow image of the aeromagnetic map. To make the shadow overlay, the light source can be rotated to different azimuths (direction clockwise from north 00 - 3600) and vertical inclinations (00 is the horizon and 900 is directly overhead).

January 17, 1995